What is claimed is:

1. A method for picking a semiconductor chip from a foil whereby the semiconductor chip is picked by a chip gripper that bears movably in a z direction on a bondhead and whereby the detaching of the semiconductor chip from the foil takes place with the aid of a needle, the method comprising the following steps:

a) Lowering the chip gripper to a position z_0 that is greater than an average height of the surface of the semiconductor chips so that the chip gripper does not yet touch the semiconductor chip,
b) Raising the needle to a predetermined position z_1, whereby the needle raises the semiconductor chip in order to bring the semiconductor chip into contact with the chip gripper and then to increase the z position of the chip gripper, and
c) Raising the chip gripper, whereby the semiconductor chip detaches itself from the needle.

2. A method according to claim 1, wherein the chip gripper is connected to a piston bearing pneumatically on the bondhead and movable in z direction, whereby the position of the piston and with it the z position of the chip gripper is controlled by means of a pressure prevailing in a pressure chamber, wherein a drive is present in order to move the bondhead in the z direction, whereby in step a, a predetermined pressure is applied to the pressure chamber so that the chip gripper takes up a limit position, whereby in step a, the bondhead is lowered and whereby in step b the raising of the needle has the effect that the chip gripper is moved out of the limit position.

3. A method according to claim 2, wherein in step c, vacuum is applied to the pressure chamber in order to abruptly detach the semiconductor chip from the needle.

4. A method according to claim 1 with which the bondhead is arranged stationary with reference to the z direction and with which the chip gripper is movable in the z direction by means of a pneumatic drive formed by two pressure chambers and a piston.

5. A method according to claim 1, wherein the z position of the chip gripper is measured after the step b in order to determine the actual z height of the surface of the picked semiconductor chip and wherein the position z_0 is updated at specific points in time.

6. A method according to claim 2, wherein the z position of the chip gripper is measured after the step b in order to determine the actual z height of the surface of the picked semiconductor chip and wherein the position z_0 is updated at specific points in time.

7. A method according to claim 3, wherein the z position of the chip gripper is measured after the step b in order to determine the actual z height of the surface of the picked semiconductor chip and

wherein the position z_0 is updated at specific points in time.

8. A method according to claim 4, wherein the z position of the chip gripper is measured after the step b in order to determine the actual z height of the surface of the picked semiconductor chip and wherein the position z_0 is updated at specific points in time.

9. A method according to claim 5, wherein the z position of the chip gripper is measured by means of an inductive sensor integrated into the bondhead.

10. A method according to claim 6, wherein the z position of the chip gripper is measured by means of an inductive sensor integrated into the bondhead.

11. A method according to claim 7, wherein the z position of the chip gripper is measured by means of an inductive sensor integrated into the bondhead.

12. A method according to claim 8, wherein the z position of the chip gripper is measured by means of an inductive sensor integrated into the bondhead.

13. A method according to claim 1, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

14. A method according to claim 2, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

15. A method according to claim 3, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

16. A method according to claim 4, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip

gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

17. A method according to claim 5, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

18. A method according to claim 6, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

19. A method according to claim 7, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.

20. A method according to claim 8, wherein in step a, the lowering of the chip gripper to a position z_0 takes place that is less than an average height of the surface of the semiconductor chips so that, on impact on the semiconductor chip, the chip gripper is deflected in relation to the bondhead, wherein the chip gripper bears pneumatically on the bondhead and wherein a sensor is integrated into the bondhead for measuring the z position of the chip gripper.